AMENDMENTS TO THE CLAIMS

Please replace the pending claims with the following claim listing:

1-11. **(Cancelled)**

12. **(Currently Amended)** A wavelength tunable distributed Bragg reflector (DBR) laser having an optical waveguide surrounded by a clad layer on a substrate, comprising;

a first passive region optical waveguide including a first DBR region having a diffraction grating in a section whose length corresponds to an effective length of 95% or more of the saturated effective length value of the first DBR region, wherein the lasing wavelength is controlled by a DBR control current,

a second passive region optical waveguide including a second DBR region having a diffraction grating in a section whose length corresponds to an effective length of 75% or less of the saturated effective length value of the second DBR region, wherein the lasing wavelength is controlled by the DBR control current, and said length of the second DBR region is within a range where the effective length of the second DBR region increases/decreases linearly in relation to the length of the second DBR region, and

an active region optical waveguide in which the first passive region optical waveguide and the second passive region optical waveguide are optically connected at both ends, wherein emission state is controlled by the active region current, irrespective of the DBR control current

wherein according to an increase or decrease in the DBR control current, a refractive index of said active region optical waveguide equally decreases or increases, respectively, in accordance with a refractive index of the first DBR region and the second DBR region such that a ratio of the lasing wavelength shift quantity to the Bragg wavelength shift quantity is maintained in a range from 0.9 to 1.1.

13. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 12, wherein the first passive region optical waveguide includes a first electrical isolating region between the first DBR region and the active region optical waveguide, and the second passive region optical waveguide contains a second electrical isolating region between the second DBR region and the active region optical waveguide.

14. **(Cancelled)**

15. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 13, wherein the length of the active region optical waveguide is in a range from 30 μm to 100 μm.

16. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 13, further comprising an anti-reflection film provided on an end face of the first passive region optical waveguide opposite the active region optical waveguide and an end face of the second passive region optical waveguide opposite the active region optical waveguide.

17. **(Cancelled)**

18. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 16, wherein the length of the active region optical waveguide is in a range from 30 μm to 100 μm.

19. **(Cancelled)**

20. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 12, further comprising an anti-reflection film provided on an end face of the first passive region optical waveguide opposite the active region optical waveguide and an end face of the second passive region optical waveguide opposite the active region optical waveguide.

21. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 12, wherein the length of the active region optical waveguide is in a range from 30 μm to 100 μm.

22. **(Previously Presented)** An integrated wavelength tunable distributed Bragg reflector (DBR) laser, comprising:

a plurality of wavelength tunable distributed Bragg reflector (DBR) lasers according to Claim 12, in which the plurality of wavelength tunable distributed Bragg reflector (DBR) lasers respectively have different pitches of the diffraction grating;

an optical coupler for coupling output lights from each of the plurality of wavelength tunable distributed Bragg reflector (DBR) lasers to one port to output a coupled light; and

an optical semiconductor amplifier for adjusting the output level of the coupled light.

23. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 20, wherein the length of the active region optical waveguide is in a range from 30 μm to 100 μm.

24-28. **(Cancelled)**

29. **(Currently Amended)** A wavelength tunable distributed Bragg reflector (DBR) laser having optical waveguides surrounded by a clad layer on a substrate, comprising:

a first passive region optical waveguide including a first DBR region having a diffraction grating in a section whose length corresponds to an effective length of 75% or less of the saturated effective length value of the first DBR region, wherein the lasing wavelength is controlled by a DBR control current, and said length of the first DBR region is within a range where the effective length of the first DBR region increases/decreases linearly in relation to the length of the first DBR region;

a second passive region optical waveguide including a second DBR region having the diffraction grating in a section whose length corresponds to an effective length of 75% or less of the saturated effective length value of the second DBR region, wherein the lasing wavelength is controlled by the DBR control current, and said length of the second DBR region is within a range where the effective length of the second DBR region increases/decreases linearly in relation to the length of the second DBR region;

an active region optical waveguide in which the first passive region optical waveguide and the second passive region optical waveguide are optically connected at both ends, wherein emission state is controlled by the active region current, irrespective of the DBR control current;

a high-reflection film coating an end face of the first passive region optical waveguide opposite the active region optical waveguide; and

an anti-reflection film coating an end face of the second passive region optical waveguide opposite the active region optical waveguide

<u>wherein according to an increase or decrease in the DBR control current, a refractive index of said active region optical waveguide equally decreases or increases, respectively, in accordance with a refractive index of the first DBR region and the second DBR region such that a ratio of the lasing wavelength shift quantity to the Bragg wavelength shift quantity is maintained in a range from 0.9 to 1.1</u>.

30. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 29, wherein the first passive region optical waveguide includes a first electrical isolating region between the first DBR region and the active region optical waveguide, and the second passive region optical waveguide includes a second electrical isolating region between the second DBR region and the active region optical waveguide.

31. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 30, wherein the length of the active region optical waveguide is in a range from 30 μm to 100 μm.

32. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 29, wherein the length of the active region optical waveguide is in a range from 30 μm to 100 μm.

33-34. **(Cancelled)**

35. **(Currently Amended)** A wavelength tunable distributed Bragg reflector (DBR) laser having optical waveguides surrounded by a clad layer on a substrate, comprising:

a passive region optical waveguide including a DBR region having a diffraction grating in a section whose length corresponds to an effective length of 75% or less of the saturated effective length value of the DBR region, wherein the lasing wavelength is controlled by a DBR control current, and said length of the DBR region is within a range where the effective length of the DBR region increases/decreases linearly in relation to the length of the DBR region;

an active region optical waveguide which is optically connected to the passive region optical waveguide, wherein emission state is controlled by the active region current irrespective of the DBR control current;

an anti-reflection film coating an end face of the passive region optical waveguide opposite the active region optical waveguide; and

a high-reflection film coating an end face of the active region optical waveguide opposite the passive region optical waveguide

wherein according to an increase or decrease in the DBR control current, a refractive index of said active region optical waveguide equally decreases or increases, respectively, in accordance with a refractive index of the DBR region such that a ratio of the lasing wavelength shift quantity to the Bragg wavelength shift quantity is maintained in a range from 0.9 to 1.1.

36. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 35, wherein the passive region optical waveguide includes an electrical isolating region between the DBR region and the active region optical waveguide.

37. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 36, wherein the length of the active region optical waveguide is in a range from 30 μm to 100 μm.

38. **(Previously Presented)** A wavelength tunable distributed Bragg reflector (DBR) laser according to Claim 35, wherein the length of the active region optical waveguide is in a range from 30 μm to 100 μm.

39. **(Previously Presented)** An integrated wavelength tunable distributed Bragg reflector (DBR) laser, comprising:

a plurality of wavelength tunable distributed Bragg reflector (DBR) lasers according to Claim 35, in which the plurality of wavelength tunable distributed Bragg reflector (DBR) lasers respectively have different pitches of the diffraction grating;

an optical coupler for coupling output lights from each of the plurality of wavelength tunable distributed Bragg reflector (DBR) lasers to one port to output a coupled light; and

an optical semiconductor amplifier for adjusting the output level of the coupled light.

40-42. **(Cancelled)**